

Commonwealth of Kentucky
Division for Air Quality
PERMIT STATEMENT OF BASIS

Title V (draft) No. V-06-029 R1
DART CONTAINER CORPORATION OF KENTUCKY
HORSE CAVE, KENTUCKY
NOVEMBER 13, 2007
LUIS D.FUENTES, REVIEWER

Significant revision V-06-029 R1

The current application was received on October 3, 2007 for removing the applicability of 401 KAR 61:060, and the emission limit on the FoamPrint emission unit (EP 08). 401 KAR 61:060 is not applicable because none of the UV printers started operation prior to June 29, 1979. As a result of this significant revision, a new permit is issued under V-06-029 R1.

SOURCE DESCRIPTION:

Dart Container Corporation of Kentucky ('Dart'), located in Horse Cave, Kentucky, produces a variety of food service containers including cups, containers, plates, lids, and utensils. Dart operates six different manufacturing processes on-site: expandable polystyrene container manufacturing, direct injection foam extrusion and thermoforming, impact extrusion and thermoforming, OPS extrusion and thermoforming, paper cup manufacturing and cutlery injection molding.

Title V permit V-97-037 was issued to Dart in March 1998 for the operations listed above. This permit was issued as synthetic minor permit. Dart Container requested a source wide VOC emissions limit of 240 TPY to preclude the applicability of 401 KAR 51:017, Prevention of Significant Deterioration of the Air Quality (PSD). In April 2001, the permit was revised to include a project, which was subject to PSD.

Since the operation of making cups has been discontinued, the following emission points have been removed and are not included in permit V-06-29:

- 1) Emission point # 09 (PAPERPRINT-01): In-line UV ink printers and Off-line printers
- 2) The insignificant activities associated with this process:
 - Paper cup machines
 - Paper cup roll splitter.

The rest of the processes listed above were unchanged. Dart submitted Compliance Assurance Monitoring (CAM) plans for the emission control equipment for the Direct Injection (DI) Foam Extrusion process and the Expandable Polystyrene (EPS) Container Manufacturing process.

Dart submitted the renewal application on August 28, 2002. This permit is being issued as a Title V permit.

EMISSION AND OPERATING CAPS DESCRIPTION:

VOC emissions from emission points 01 through 08 shall not exceed 240 TPY, to preclude applicability of 401 KAR 51:017, Prevention of Significant Deterioration of Air Quality. For compliance demonstration, see specific emission points under Section B.

PERIODIC MONITORING:

Emission points 01, 02, and 03- Cleaver Brooks Steam Boilers.

The permittee shall monitor and maintain records of the following information:

- a. The total monthly fuel usage rate (cubic feet/month or gallons per month) for each of the fuel listed herein.
- b. The total monthly hours of operation (hours operated per month) of the boilers.
- c. The sulfur content of each type of fuel burned. The sulfur content may be determined by fuel sampling and analysis or by fuel supplier certification.

Emission Point 04- Expandable Polystyrene (EPS) Container Manufacturing (Cup Molding Presses, Dumpsters, Blenders, Holding Tanks, Pre Expanders, Screeners, Storage Bags).

The permittee shall monitor and maintain records of the following parameters:

- a. The monthly throughput of EPS and the Pentane concentration in EPS beads.
- b. The monthly amount of VOC (Pentane) in tons, captured by the emissions capturing device. This shall be measured as proposed by the source using the Continuous Emission Monitor (CEM) data and a computer program.
- c. The flow rate and the pentane concentration in air into the Pentane Control System in order to determine lb/hr of pentane entering the boilers. The operation of Pentane Control System shall be monitored on an hourly basis to ensure that the system is working properly. The monitor to measure pentane concentration shall be calibrated and operated according to manufacturer's specifications.

Emission Point 10 and 11- DI Foam Extrusion lines with Laminators; Emission Point 12- Roll Storage; Emission Point 13- Thermoforming; Emission Point 14- Scrap Regrinding and Fluff Transfer; Emission Point 15- Reclaim Extruders.

The permittee shall monitor and maintain records of the following parameters:

- a. The daily usage rate (tons/day) of polystyrene raw material (at emission points 10 and 11), daily amount of isopentane charged (tons/day), and the daily amount of finished product (tons/day).
- b. The flow rate of the exhaust gases from the extrusion process, grinding process and the Reclaim Extruders into the RTO and the concentration of VOC's in the exhaust stream. A flow sensor shall be used to measure the flow rate and an infra-red sensor (IR sensor) shall be used to measure the concentration of the VOC's. A computer program shall be used to integrate the flow rate and the concentration data to calculate the daily mass of VOC's inputted into the RTO. The data recorded shall be kept available either in hard copy or computer readable form. The daily VOC captured data shall be used to calculate the combined daily mass VOC emissions (tons/day) calculated from the emission points 10 through 15.

Emission Point 17- Regenerative Thermal Oxidizer.

The permittee shall monitor and maintain records of the following parameters:

- a. The firebox temperature shall be measured by means of a data-recording device. The monitor shall be installed in the firebox or in the ductwork immediately downstream of the firebox before any substantial heat exchange is encountered.
- b. The firebox temperature shall be recorded at least once every 15 minutes or shall be recorded in 15-minute or more frequent block average values. The data recorded shall be kept available either in hard copy or computer readable form.

COMPLIANCE ASSURANCE MONITORING (CAM):

The Compliance Assurance Monitoring (CAM) plan for the DI foam extrusion process is summarized below:

1. Description: Direct Injection foam extrusion process
2. Identification: Emission points 14, and 15.
3. Control device: Regenerative Thermal Oxidizer (RTO)

Monitoring Approach:

- A. Dart will monitor the average temperature in the combustion chamber of the RTO continuously.
- B. Dart will monitor the capture airflow rate continuously.
Note: Pitot tubes and mass flow meters are used to determine the capture air feed to the RTO unit.
- C. Dart will monitor the VOC concentration in the capture air continuously.
Note: An infrared sensor is used to determine the concentration in the capture air.

During the destruction source testing, the average temperature of the combustion temperature was determined to be 1500°F. All periods when the temperature falls below this level will be indicated on the Title V deviation reports. Dart will continuously monitor the combustion temperature, and record it on a chart recorder, to prove correct operation of the RTO. Two thermocouples inserted into either side of the combustion chamber are used to determine the average combustion temperature. At least once a year the thermocouples will be checked for accuracy and will be recalibrated or replaced if necessary.

The CAM plan for the EPS Container Manufacturing Process is summarized below:

1. Description: Expandable Polystyrene container production/ bead handling/ preparation section.
2. Identification: Emission point 04
3. Control device: Steam Boiler (Post control) (emission points 01, 02, 03)

Monitoring Approach:

A. Dart will monitor concentrations of VOC in capture air.

Note: An infrared sensor is used to determine the concentration in the capture air.

B. Dart will monitor flow rate of capture air

Note: Pitot tubes and mass flow meters are used to determine the volume of capture air feed to the steam boilers.

C. Dart will monitor flame in boilers – Emission Points 01, 02, 03.

Background/Rational for Performance Indicators:

Dart collects VOC emissions from the bead handling and the bead pre-expanders and vents the emissions directly to the boilers for thermal destruction. The VOC concentration and flow rate of the capture air is monitored so that the amount of emissions reduction can be calculated.

The capture air is only fed to operating boilers and the flow rate to the boilers is monitored to ensure a safe and efficient VOC capture. The boiler flame color is also monitored on a daily basis to ensure correct operation of the boilers and VOC thermal destruction. The safety vent valve position is monitored to ensure that the capture air is being directed to the boilers and not to the atmosphere. Dart has carried out emission testing to obtain the appropriate emission factor and has conducted a destruction test to determine the boiler destruction efficiency.

OPERATIONAL FLEXIBILITY:

None

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.